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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/397,814	09/17/1999	ZHONG-CHENG HU	12610-0450	9259

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EXAMINER	
METZMAIER, DANIEL S	
ART UNIT	PAPER NUMBER
1712	

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/397,814	HU, ZHONG-CHENG
	Examiner	Art Unit
	Daniel S. Metzmaier	1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-10,12,16-20,34-48,50 and 51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,7-10,12,16,18-20,34,35,37-44,46-48,50 and 51* is/are rejected.

7)☒ Claim(s) *4-6,17,36 and 45* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
4) ☐ Interview Summary (PTO-413) Paper No(s) _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other

DETAILED ACTION

Claims 2-10, 12, 16-20, 34-48, 50-51 are pending in the instant application. Claims 1, 13-14 and 21-32 have been canceled; and claims 2-4, 7-9, 12 and 16-18 have been amended by the After final Amendment filed April 30, 2003, Paper No. 26. Said After Final Amendment has been entered.

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. A new reference has come to the attention of the examiner as set forth below.

2. It is suggested applicants delete the phrase "less than 90° C" and/or substitute it with the range of "from about 20° C to about 25° C" in claims 19 and 20 to remove the possibility of confusion or misinterpretation. The temperature range of "from about 20° C to about 25° C" is set forth in the last two line of the claims and defines a range within the "less than 90° C" range.

Claim Objections

3. Claim 40 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 40 contains the range limitation for the organic solvent to water volume ratio provided for in lines 10 and 11 of independent claim 34 from which it depends.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 7-10, 12, 16, 18-20, 34, 37-43, 46-48 and 50-51 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kankoku Kagaku, JP 09 002818, as evidenced by the machine translation of JP 09

002818, Japan Patent Office. The Machine translation is referred to hereafter for page and line citations unless specifically specified. The translation is evidence of the disclosure of JP 09-002818.

Kankoku Kagaku discloses making powders from a solution of titanium salt in a mixed solvent of water and lower alcohols. The powders are formed by hydrothermal treatment of precipitates resulting from said solutions. Kankoku Kagaku (paragraph [0025] et seq) discloses the dependency of the temperature, the salt employed, and the alcohol employed. Kankoku Kagaku (paragraph [0025]) discloses precipitating temperatures in the range of 15° C to 75° C and (paragraph [0025]) at a 5:1 ratio of 3-butanol to water the precipitation temperature falls to 15° C.

Kankoku Kagaku (drawing number 13 of translation) discloses precipitation times of greater than one minute and less than 60 minutes. This is within applicants claimed range for incubation of one minute to 72 hours (3 days). Kankoku Kagaku (drawings and paragraph [0031], [0034] and [0054]) characterize the particles as uniform in size in the range of 0.5 to 1 micron in dispersed form. These are nanosize particles as the range equates to 500 to 1000 nanometers. The drawings and uniform particles as disclosed would read on monodispersed compositions. Kankoku Kagaku (paragraph [0053]) teaches the dependence of salt concentration on the particle size and agglomeration.

The specification does not specifically define the term "nanosized particles". Said terms take the plain meaning of the art. The examples characterize both sols expressed in nanometers and microns including sols having particles of several

hundred nanometer particle size. Attention is directed to page 24, table 2 of the instant specification.

To the extent the Kankoku Kagaku reference differs from the claims in the breadth of the disclosure and/or exemplified disclosure of the temperature, particle size and/or particle dispersity; Kankoku Kagaku discloses ranges for making dispersed titanium oxide particles from a salt solution in a mixed solvent system. Applicants parameters read on the disclosed ranges of temperature, solvent to water ratios, times, and the use of the same materials. Kankoku Kagaku teaches the interdependence of the parameters in making dispersed particles to provide uniform particles.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to vary the parameters of the Kankoku Kagaku process for the desired advantage of making un-agglomerated particles of uniform size.

To the extent the Kankoku Kagaku reference further includes a hydrothermal treatment step, said step is not excluded from the claims and applicants disclose the hydrotreatment of claimed samples at the instant page 30. To the extent the claims were to exclude the hydrotreating step, the elimination of a step and its function has been held to be *prima facie* obvious wherein the the function is not desired. The Kankoku Kagaku reference is specifically taught as a coating material and may be hydrothermally treated after coating.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to vary the steps of the Kankoku Kagaku process for the desired advantage of making coated articles as taught in the Kankoku Kagaku reference.

7. Claims 2-3, 35 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kankoku Kagaku, JP 09 002818, as evidenced by the machine translation of JP 09 002818, Japan Patent Office.

Kankoku Kagaku discloses methods as set forth in the above rejection.

Kankoku Kagaku differs from the claims in the order of mixing of the salt and solvent ingredient or a subsequent neutralization step.

Selection of any order of mixing ingredients has been held to be *prima facie* obvious. The particular order of mixing the salt solution and the solvent have not been shown to be critical to the invention and would have been an obvious and expected method sequence within the level of skill of one having ordinary skill in the art at the time of the instant invention. Please see ***In re Gibson***, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) and MPEP 2144.04(IV)(C).

Kankoku Kagaku (paragraph [0037]) teaches the disclosed methods remove the need for pH control of the conventional methods for the advantage of obtaining the desired shape and/or size. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ a neutralization step for the advantage of more controlled size and/or shape of the particulates as a process step taught to be conventional in the Kankoku Kagaku reference.

Allowable Subject Matter

8. Claims 4-6, 17, 36 and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims 2-10, 12, 16-20, 34-48 and 50-51 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. It is noted, Kim et al, US 5,846,511, is a patent family member of Kankoku Kagaku cited above and qualifies as prior art under 35 USC 102(e).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on (703) 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Daniel S. Metzmaier

Daniel S. Metzmaier
Primary Examiner
Art Unit 1712

DSM
May 13, 2003